

EDC430/431 Reading Journal

Your reading journal should include your initial personal thoughts, feelings, and questions that arise as you read it. I will provide reading prompts for each chapter. However, you are not obligated to respond to these. You may choose to respond to all, some, or none.

Each chapter reading is followed by a (small) group discussion in class. I expect you to incorporate what you learned (new ideas, different points of view etc.) from the group discussion as an addendum to your initial entry before you submit your journal entry to me. (Read chapter, write your entry, discussion in class, incorporate ideas from class discussion, submit journal entry)

I am not requiring a minimum or a maximum number of pages for each entry. I am not looking for any specific format. I am open to how you would like to give shape to your journal. I do ask that you type your thoughts in MS-word and send your journal entries to me as an e-mail attachment or post it in Evernote by Friday 11:59PM of the week the journal is due.

Entry 0: This entry should include your responses to the following questions. **Please respond to these questions before you begin reading the book.**

Premiere Question:

0. What are your concerns about learning to teach secondary mathematics?

General Questions of Interest:

1. What is your view of mathematics?
2. How do you view yourself as a mathematician/mathematics learner?
3. What are your ideas/conceptions of how (your future) students learn mathematics (best)?
4. Describe your favorite MS/HS teacher. What were his/her qualities? Which of these do you hope to emulate? Why?
5. How do you plan to teach “lower track” or “lower ability” students?
6. How would you assist a student who has not mastered operations with fractions, decimals, and percents as a secondary teacher?

Book Related Questions (**Do not read ahead**):

7. How would you teach students a) the determination of the equation of a line?; b) how to factor quadratics? (pp 6-12)
8. In your mind what is Algebra? What are the fundamental objects of study in Algebra? (pp. 68-75)
9. What is an algebraic expression? (p. 89)
10. What is the purpose of learning to work with symbols in algebra? (pp. 104-107)
11. What is the difference between the teaching and learning of algebra versus geometry?
12. What is the role of proof in the secondary mathematics curriculum/instruction?
13. How would you motivate your students to learn Algebra/Mathematics?

Entry 1: Chapter 1

After reading this chapter consider any, all, or none of the following questions in your journal reflections:

1. How important is it for you to create a student-centered learning environment? What does this look like in your mind?
2. How is a teacher's (your) behavior different in a student-centered learning environment than in a more teacher (authority)-centered environment? How do you manage a class in such an environment?
3. What is the role of technology in a student-centered environment?
4. What are the risks for the teacher and/or the learners in a student-centered environment?
5. How do your feelings affect your teaching? (The author talks about feelings in several places, e.g. on page 6.)
6. Other issues that arose from the reading.

Entry 2: Chapter 2

After reading this chapter consider any, all, or none of the following questions in your journal reflections:

1. What are your ideas, experiences, and feelings regarding centering a curriculum on tasks rather than on skills? (p.39-40)
2. How do you expect your future mathematics colleagues look at prompt 1?
3. What is your response to the following quotation in relation to reading this chapter: "Mathematics is not a created subject, but rather a subject to be created." (Hans Freudenthal)
4. On page 40 the author states, "We were dependent on students' willingness to explore problems, share their ideas, and engage with the ideas of others.: They describe this as a risk. How do you envision accepting such a risk in your classroom?"
5. On page 41 the author claims that in addition to designing and re-designing tasks he needed to do more to keep engagement from being so variable. He mentions, "... we began to think that we needed to learn more about our students." How do you envision yourself getting to know your student, who most likely are very different from you (at least in their appreciation of mathematics)?
6. Other issues that arose from the reading.

Entry 3: Chapter 3

After reading this chapter consider any, all, or none of the following questions in your journal reflections:

Note: These prompts pretty much follow the order of the chapter. As always, you do not have to use these prompts for your reading journal, but hopefully they will stimulate your thinking.

1. In your mind, how will you know that one of your students has a conceptual understanding of, say, algebra? (Note: If you want to learn more deeply about a theoretical underpinning of conceptual understanding, I suggest you read the following: Richard Skemp (1971). *The psychology of learning mathematics*. Penguin Books Ltd.)
2. What does psychologizing algebra mean to you? [Note: A more modern term is mathematizing, which was coined by Hans Freudenthal. If you google this word you will find lots of interesting stuff. See for example: <http://www.fi.uu.nl/en/rme/>)
3. What view(s) of mathematics have you experienced as a student (formalist, Platonist, or reformist/realistic)? p.67-68. How may that impact your view on how children learn math?
4. The author describes several points of view (including his own) regarding the *central objects of study* in algebra (see p. 70-76). Which point(s) of view do you recognize in your own education? What is your appreciation of the author's ideas?
5. On page 85, the author gives a broad outline of an algebra course. What would you keep? Change?
6. After reading this chapter how has your own conception of what an algebraic expression is changed? (See p.89)
7. On page 93 the author make the case that it important to get to know your students in order to be able to teach them. How do you plan to do this?
8. On page 97 the author writes..."As in most teaching situations, ours was filled with missteps and failures." Why do you think teaching is so prone to "missteps and failures?"
9. On page 104 the author explains that, "...the teachers turned to their own subject matter understanding, to the justifications they had for such work." Do you have any experiences—say tutoring someone—where you found yourself doing this? Did that help the learner? [See also bottom page 107.]
10. The chapter appears to me to discuss the differences in acculturating (assimilate or cause to assimilate a different culture, typically the dominant one) and enculturating (the gradual acquisition of the characteristics and norms of a culture or group by a person, another culture, etc.) students into algebra. Was your education more of an acculturation or an enculturation? What do you prefer?
11. The author describes four major components for the learning and teaching of algebra: 1. Psychologizing the subject, 2. Identifying central objects of study, 3.

- Reasoning and proof as an authentic representation of mathematics, and 4. discourse (chapter 4). How would you incorporate the role of proof in the teaching/learning of algebra?
12. What is your (lack of) knowledge OF mathematics, ABOUT mathematics, and about mathematics in society?
13. What is your knowledge map of school algebra?
14. Respond to the diagrams below:

Hierarchical approach (meaning is imparted; students are acculturated)

Subject matter



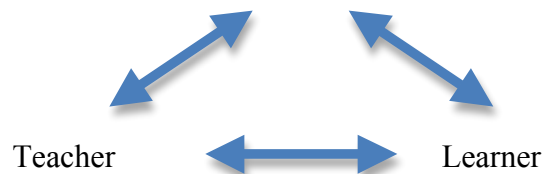
Teacher



Learner

Interactional approach (meaning is negotiated; students are enculturated)

Subject Matter



Entry 4-5: Chapter 4 and 5.

I do not provide prompts for chapter 4 and 5. I would like you to write entirely about your own issues.

Entry 6: Summarizing the reading

In this entry describe the main learning points for you that emerged from reading this book throughout the semester